

Application No. 10/522,093
Filed: January 21, 2005
TC Art Unit: 4172
Confirmation No.: 6846

REMARKS

Claims 11-14 and 19 have been withdrawn as directed to a non-elected invention. Claims 8, 10, 16, and 18 are directed to non-elected species of the elected invention and have not yet been examined. Claims 1-7, 9, 15, and 17 have been examined and are presently under consideration. Claim 2 has been amended to correct a typographical error. No new matter has been added.

Unity of Invention

Applicant affirms the election of the invention of Group A, claims 1-10 and 15-18, directed to a method of immobilizing a polymer hydrogel on the surface of a polymer substrate. Applicant further affirms the election of the species A-II for initial examination, corresponding to the method of Group A in which the photoinitiator compound is nicotinic acid amide.

Rejection Under 35 U.S.C. 102(b)

Claims 1-7 and 15 are rejected as allegedly anticipated by Swan et al., U.S. 2002/0004140A1. Swan allegedly discloses a method of forming a polymer layer on a support surface by using a coating agent and polymerizable compounds. The coating agent contains a photoinitiator that attaches to the surface and mediates the attachment of the coating agent to the surface, as well as an additional photoinitiator that activates the polymerizable compounds to form a polymer layer. The rejection is respectfully traversed.

The present claims are directed to a method in which at least one hydrogel-forming polymer and at least one non-toxic photoinitiator compound are applied to the surface of a polymer

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substrate to form a hydrogel, which is subjected to treatment with electromagnetic radiation so as to immobilize the gel. The presently claimed method is distinct from the method disclosed by Swan et al. Most notably, Swan et al. do not apply a polymer to a substrate, but instead apply polymerizable compounds (i.e., monomers) to a substrate and then polymerize them in place on the substrate. See, e.g., Swan et al. Abstract, paragraph [0011], and paragraph [0018]. Swan et al. do not teach or suggest any method in which a preformed polymer is immobilized on a polymer surface, as required by the present claims. Thus, while Swan et al. use photoinitiation to form a polymer on a substrate from monomers, the present method uses photoinitiation to anchor or immobilize a pre-formed polymer to a substrate.

The distinction between attaching a preformed polymer gel and polymerization of a gel directly on the surface of a substrate is significant. The presently claimed method, in which a preformed hydrogel is immobilized on the surface of a polymer substrate, provides a simple, inexpensive, and gentle method that generally causes no adverse changes in the polymer surface and uses no toxic or unsafe initiators. Therefore, the claimed method improves worker safety and results in a cleaner, less contaminated hydrogel layer. As presented in the introductory part of the present application, the immobilization of an already formed hydrogel on a polymer surface is not simple, and was previously performed by gamma radiation and involves toxic substances. The claimed method, in contrast, uses a non-toxic photoinitiator compound and treatment with lower energy radiation.

The disclosure of Swan et al. does not go beyond the prior art already cited in the background material of the present

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application. For example, U.S. 2,850,445, cited in the present application, describes the polymerization of a hydrogel-forming polymer from monomers using a photoinitiator.

Because Swan et al. does not teach or suggest every limitation of claims 1-7 and 15, Swan et al. does not anticipate the claims. Moreover, claims 1-7 and 15 also are not obvious over Swan et al. for the same reason. In order to render the claims obvious, each and every limitation of the claims must be found in the prior art. However, Swan fails to teach or even suggest the attachment of a pre-polymerized hydrogel to a polymer substrate. Withdrawal of the rejection is respectfully requested.

Rejection Under 35 U.S.C. 103(a)

Claim 2 is rejected as allegedly obvious over Swan et al., U.S. 2002/0004140A1. Swan et al. teaches activating a photoinitiator using light of wavelength 330-340 nm. Claim 2 recites the use of light in the range of 170 to 600 nm. The Office Action alleges that it would have been obvious to extend Swan's wavelength range to that of claim 2 in order to optimize the wavelength parameters to produce the best product. The rejection is respectfully traversed.

The optimization of wavelength would have depended on the type of photoinitiator used. However, notwithstanding the wavelength range recited in claim 2, Swan et al. still fails to teach or suggest the immobilization of a preformed polymer to a substrate. Therefore, because Swan et al. fails to teach or suggest every element of the claim, Swan et al. does not support a *prima facie* case of obviousness. The withdrawal of the rejection is respectfully requested.

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Claims 9 and 17 are rejected as allegedly obvious over Swan et al., U.S. 2002/0004140A1 in view of Kondo et al., JP 54060386A. These claims recite the use of nicotinic acid amide as the initiator compound. Kondo is cited as teaching the use of nicotinic acid amide as an initiator compound for photopolymerization. The rejection is respectfully traversed.

The Swan and Kondo references, either singly or in combination, fail to teach or suggest the immobilization of a preformed polymer to a substrate, as required by the present claims. Therefore, because Swan et al. in view of Kondo et al. fails to teach or suggest every element of the claims, the claims are not obvious. The withdrawal of the rejection is respectfully requested.

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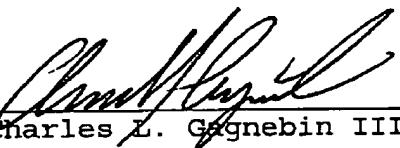
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The Examiner is encouraged to telephone the undersigned attorney to discuss any matter which would expedite allowance of the present application.

Respectfully submitted,

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